Graphics Verification
Mar 04 Results

Measures Used

2 x 2 Contingency Table

Observations \ Forecasts			
	A	B	C = A +B
	D	E	F = D + E
	G = A + D	H = B + E	I = C + F

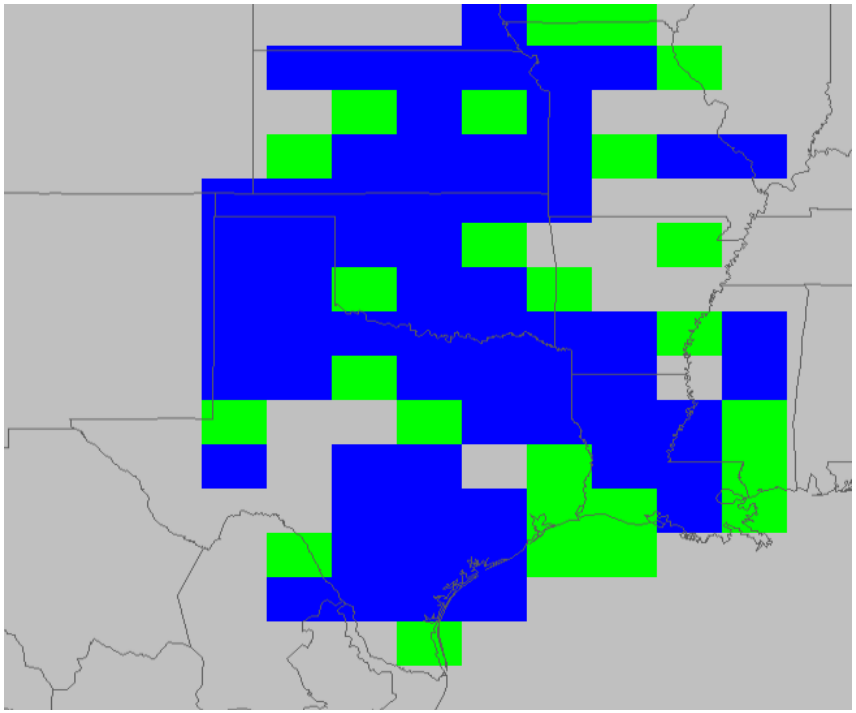
- **Chi-Square** – used to test for statistical significance. Answers the question, “Do we have a large enough sample to know our results are conclusive?”.
- **Heidke Skill Score** – used to test whether we are beating persistence or climatology.
- **Bias** – used to determine whether we are over-forecasting or under-forecasting.

HWD Results

Period: 01-31 Mar 04

HWD 12 Hr Forecast

HEIDKE SKILL SCORE



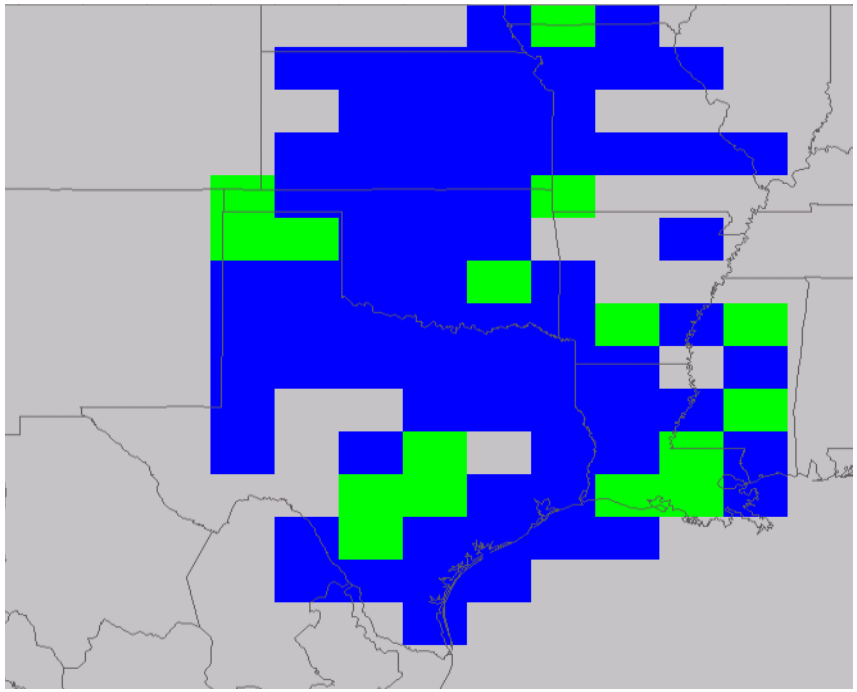
Strong Skill (hss>.5)

Weak to Moderate Skill (0<hss<.5)

No Skill (hss< 0)

Insufficient Data

BIAS



Over-Forecast (bias>1.2)

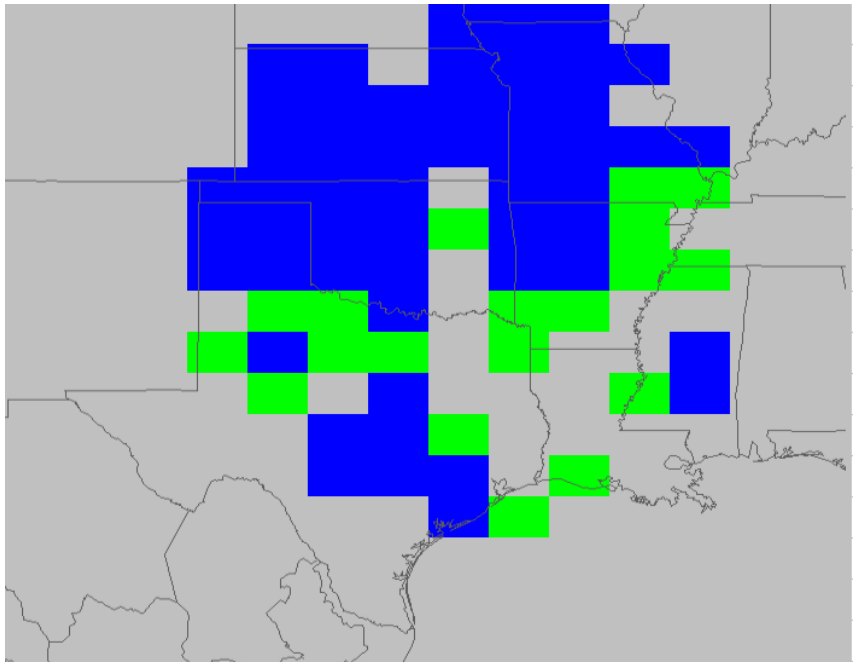
No Significant Bias (.8<bias<1.2)

Under-Forecast (bias< .8)

Insufficient Data

HWD 24 Hr Forecast

HEIDKE SKILL SCORE



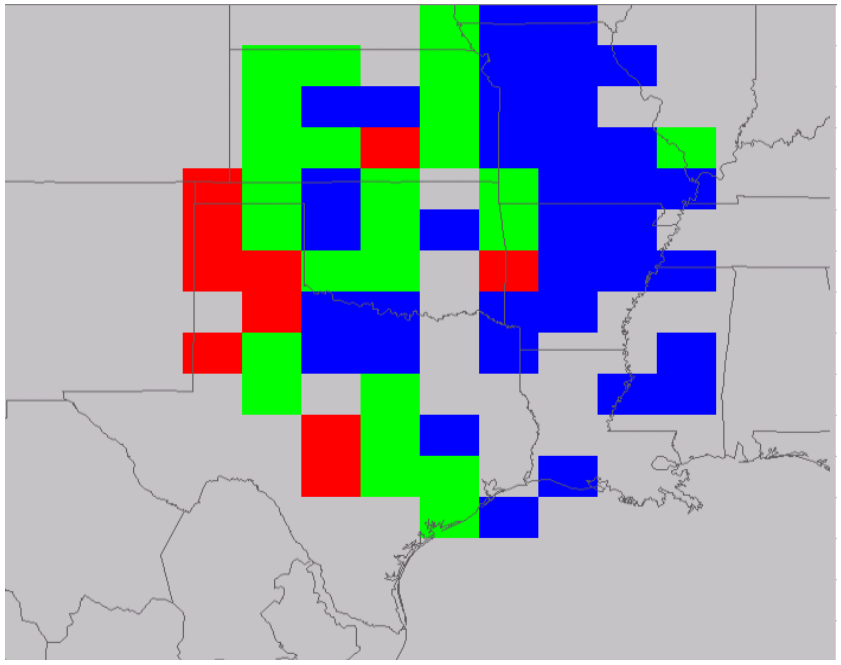
Strong Skill (hss>.5)

Weak to Moderate Skill (0<hss<.5)

No Skill (hss< 0)

Insufficient Data

BIAS



Over-Forecast (bias>1.2)

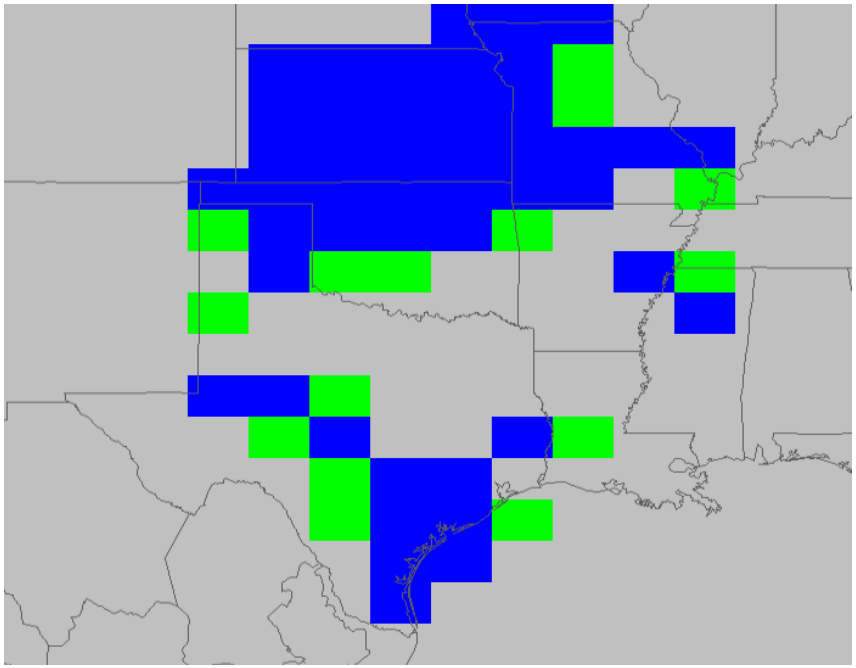
No Significant Bias (.8<bias<1.2)

Under-Forecast (bias< .8)

Insufficient Data

HWD 48 Hr Forecast

HEIDKE SKILL SCORE



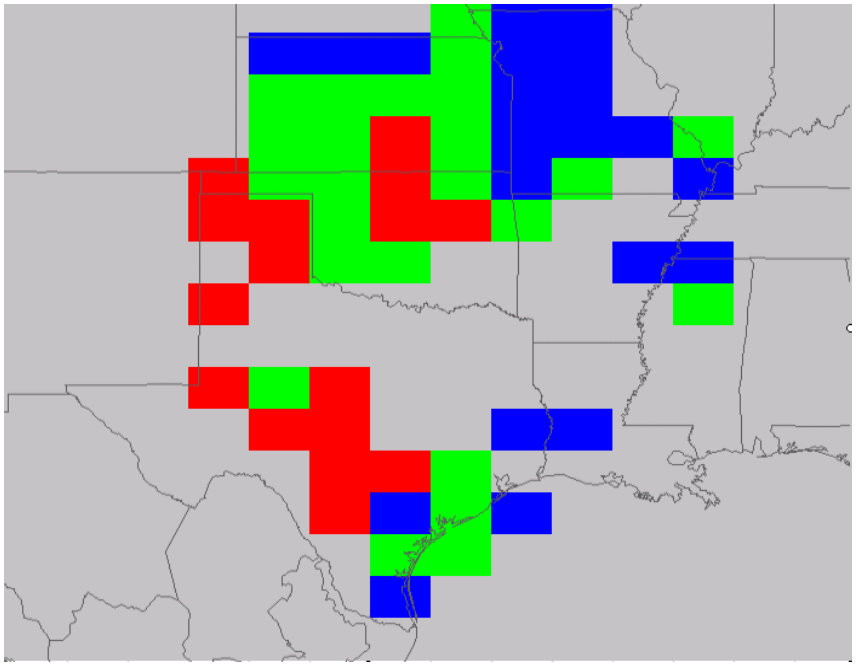
Strong Skill (hss>.5)

Weak to Moderate Skill (0<hss<.5)

No Skill (hss< 0)

Insufficient Data

BIAS



Over-Forecast (bias>1.2)

No Significant Bias (.8<bias<1.2)

Under-Forecast (bias< .8)

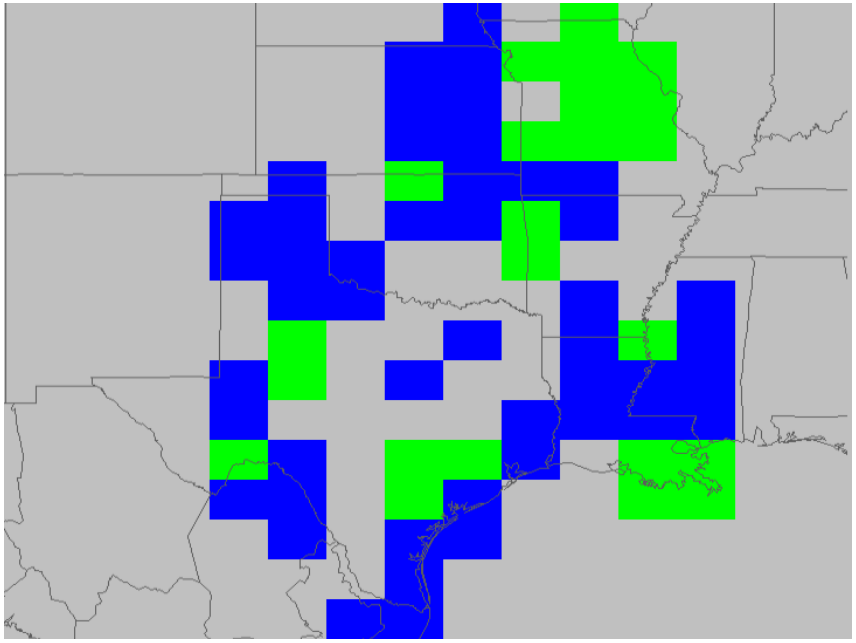
Insufficient Data

Thunderstorm Results

Period: 01-31 Mar 04

TSTMS 12 Hr Forecast

HEIDKE SKILL SCORE



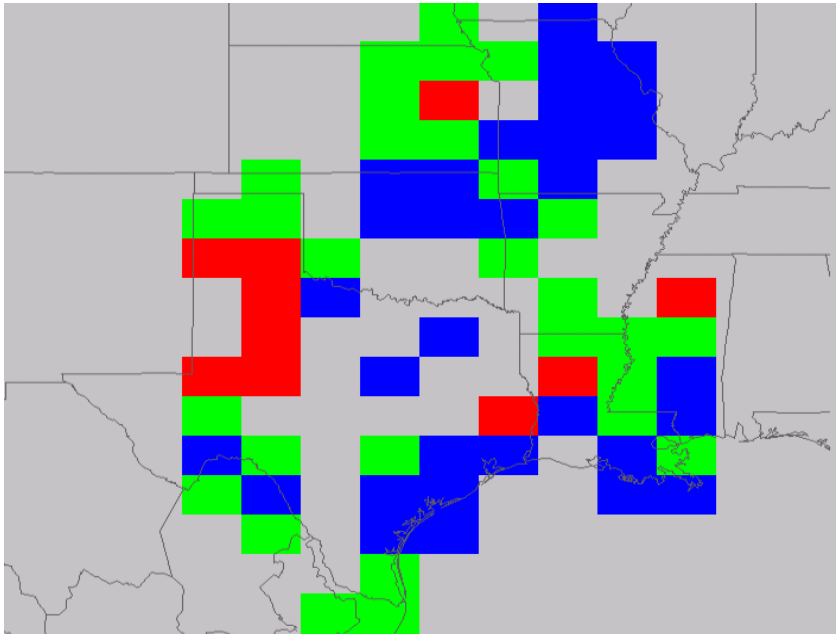
Strong Skill (hss>.5)

Weak to Moderate Skill (0<hss<.5)

No Skill (hss< 0)

Insufficient Data

BIAS



Over-Forecast (bias>1.2)

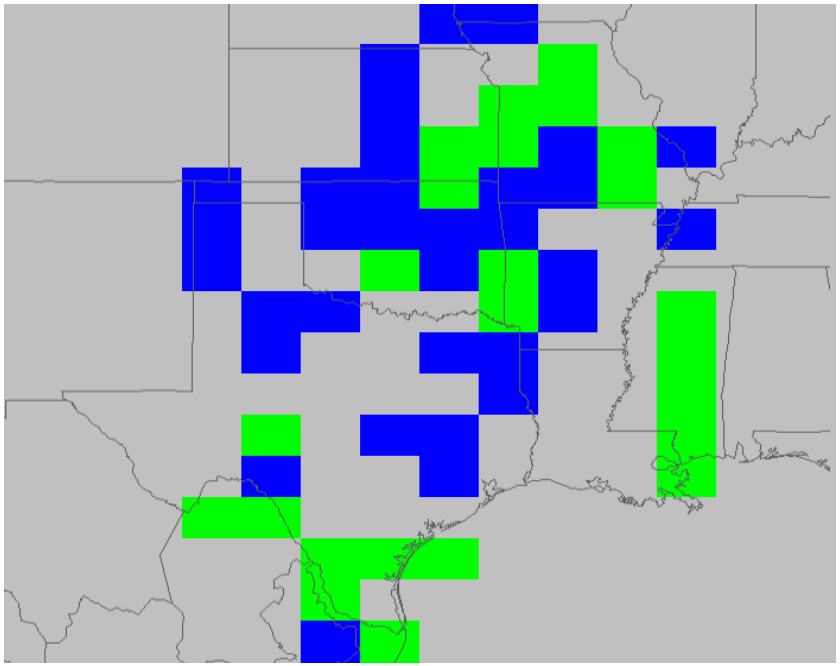
No Significant Bias (.8<bias<1.2)

Under-Forecast (bias< .8)

Insufficient Data

TSTMS 24 Hr Forecast

HEIDKE SKILL SCORE



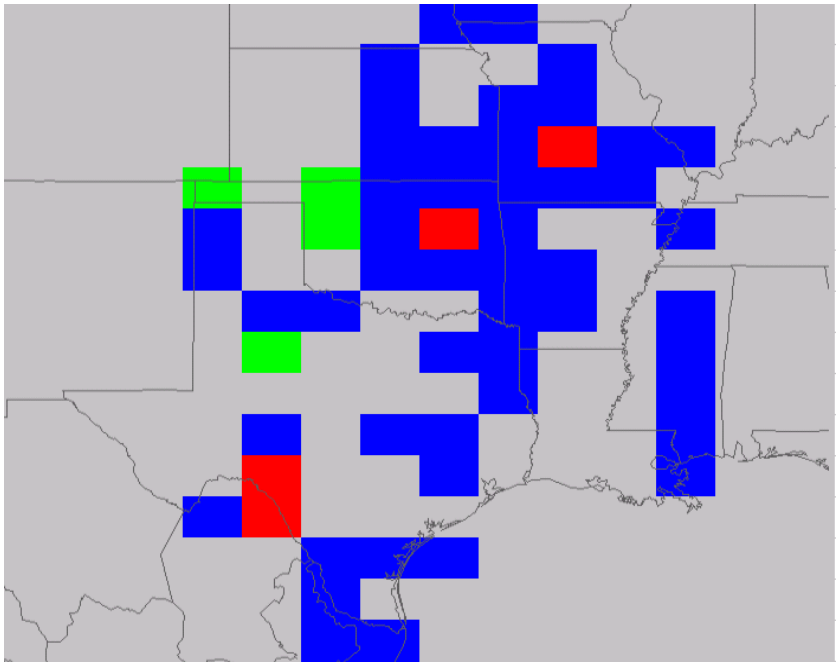
Strong Skill (hss>.5)

Weak to Moderate Skill (0<hss<.5)

No Skill (hss< 0)

Insufficient Data

BIAS



Over-Forecast (bias>1.2)

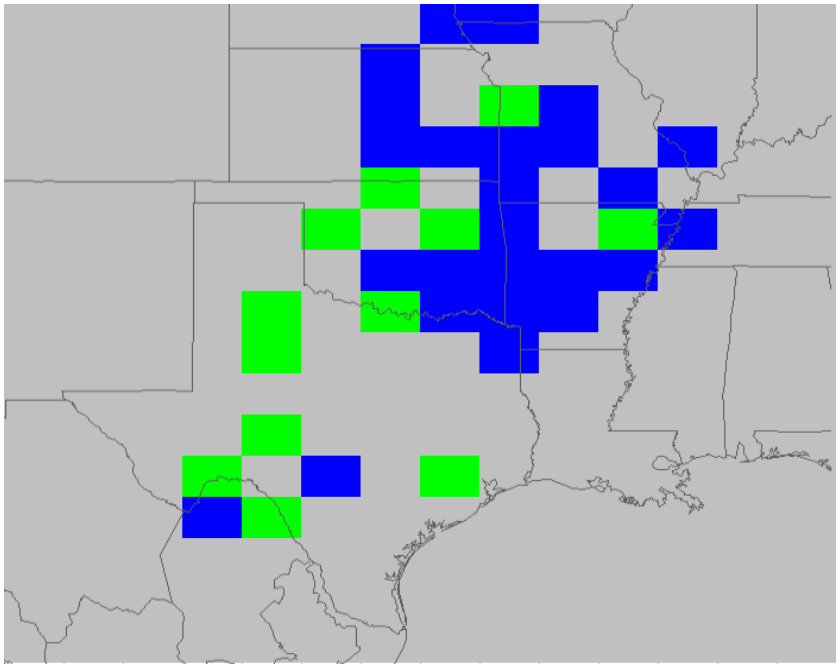
No Significant Bias (.8<bias<1.2)

Under-Forecast (bias< .8)

Insufficient Data

TSTMS 48 Hr Forecast

HEIDKE SKILL SCORE



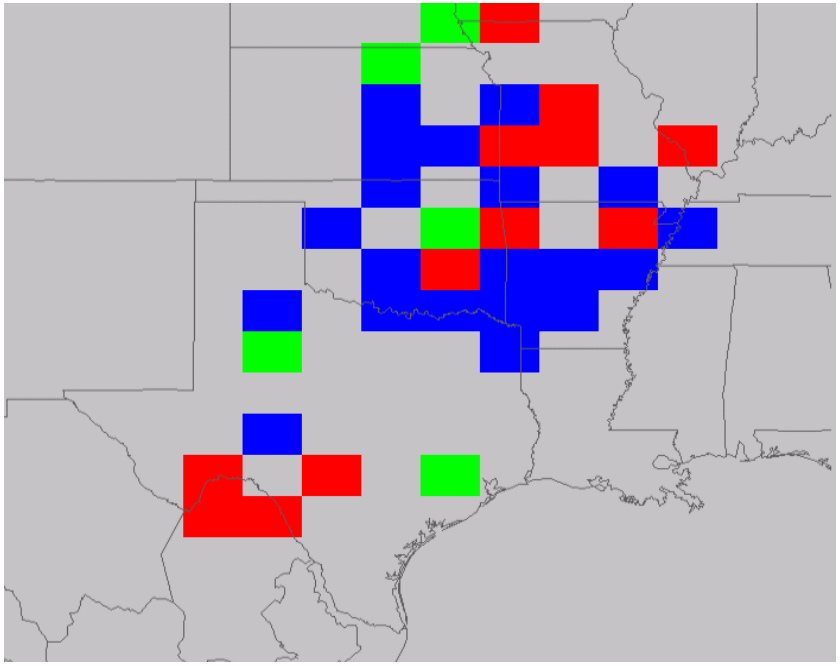
Strong Skill (hss>.5)

Weak to Moderate Skill (0<hss<.5)

No Skill (hss< 0)

Insufficient Data

BIAS



Over-Forecast (bias>1.2)

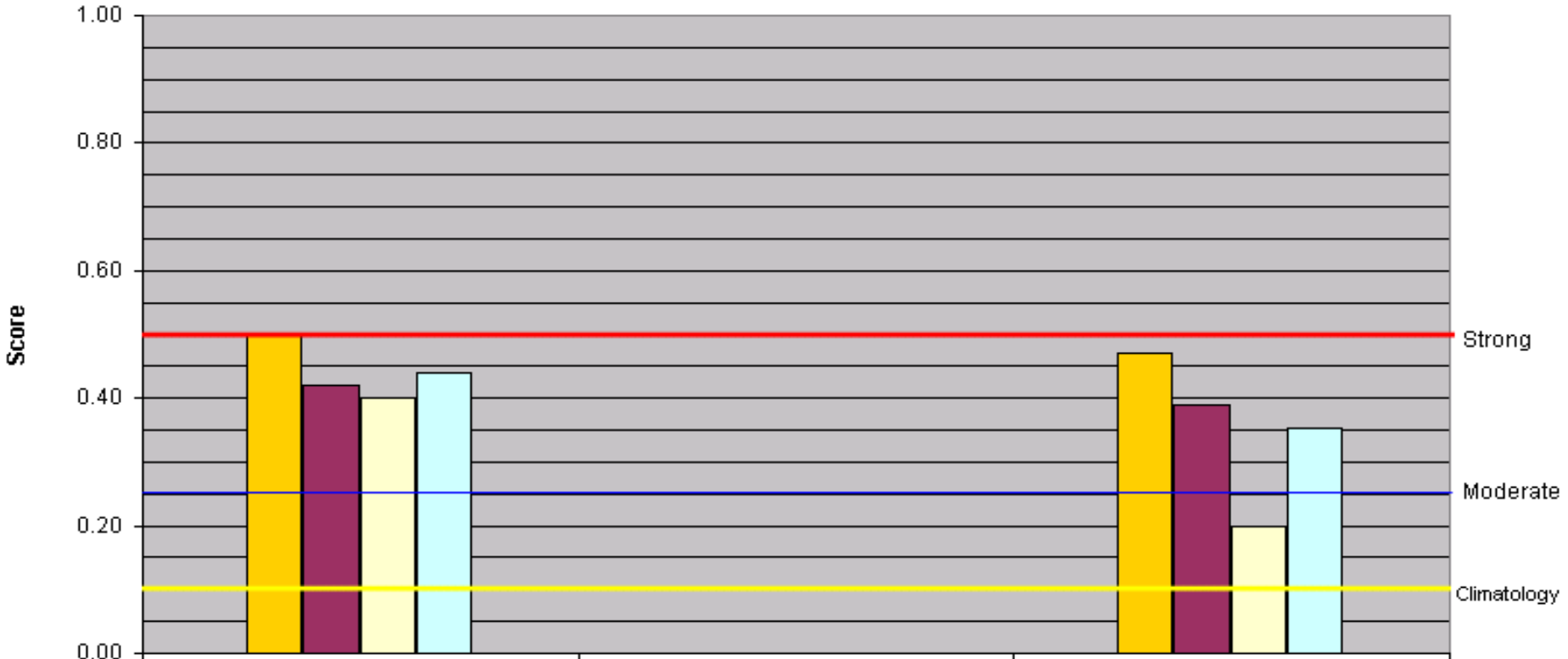
No Significant Bias (.8<bias<1.2)

Under-Forecast (bias< .8)

Insufficient Data

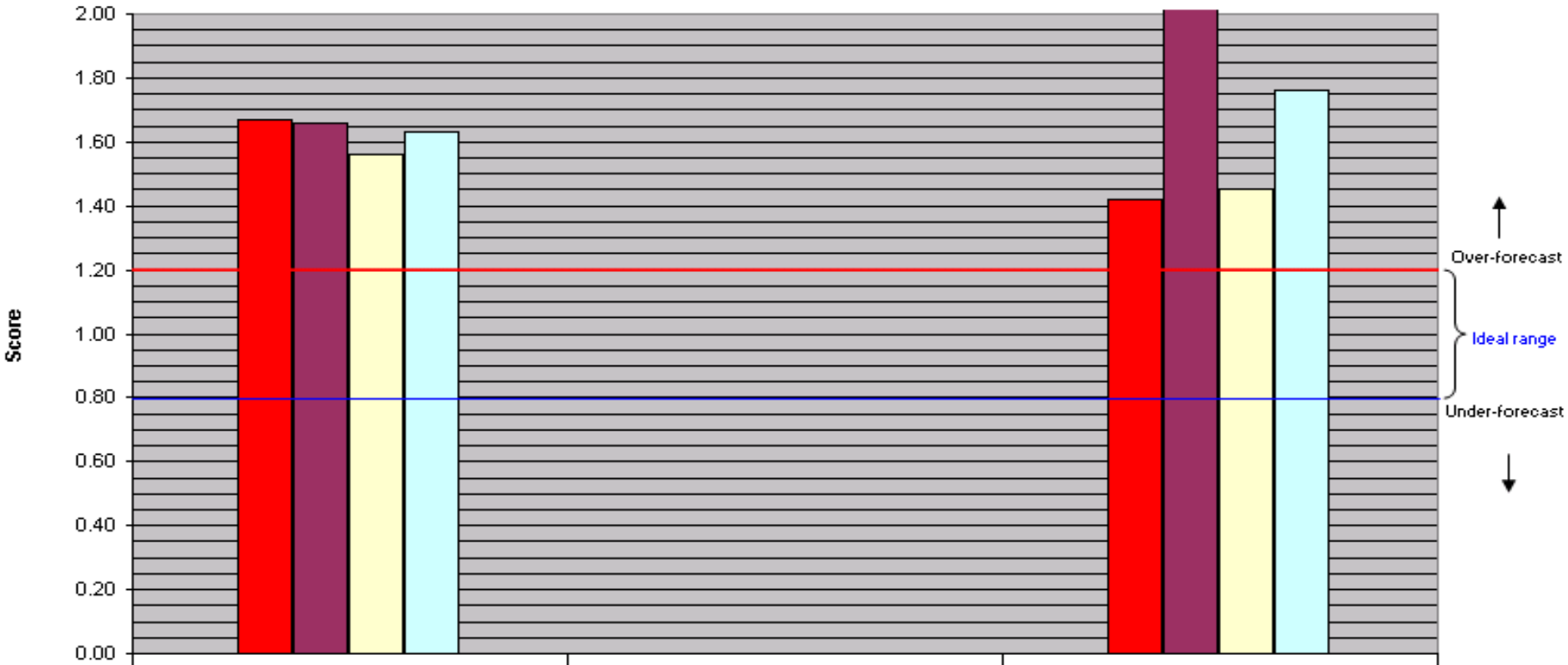
Numerical Output

Mar 04 HSS



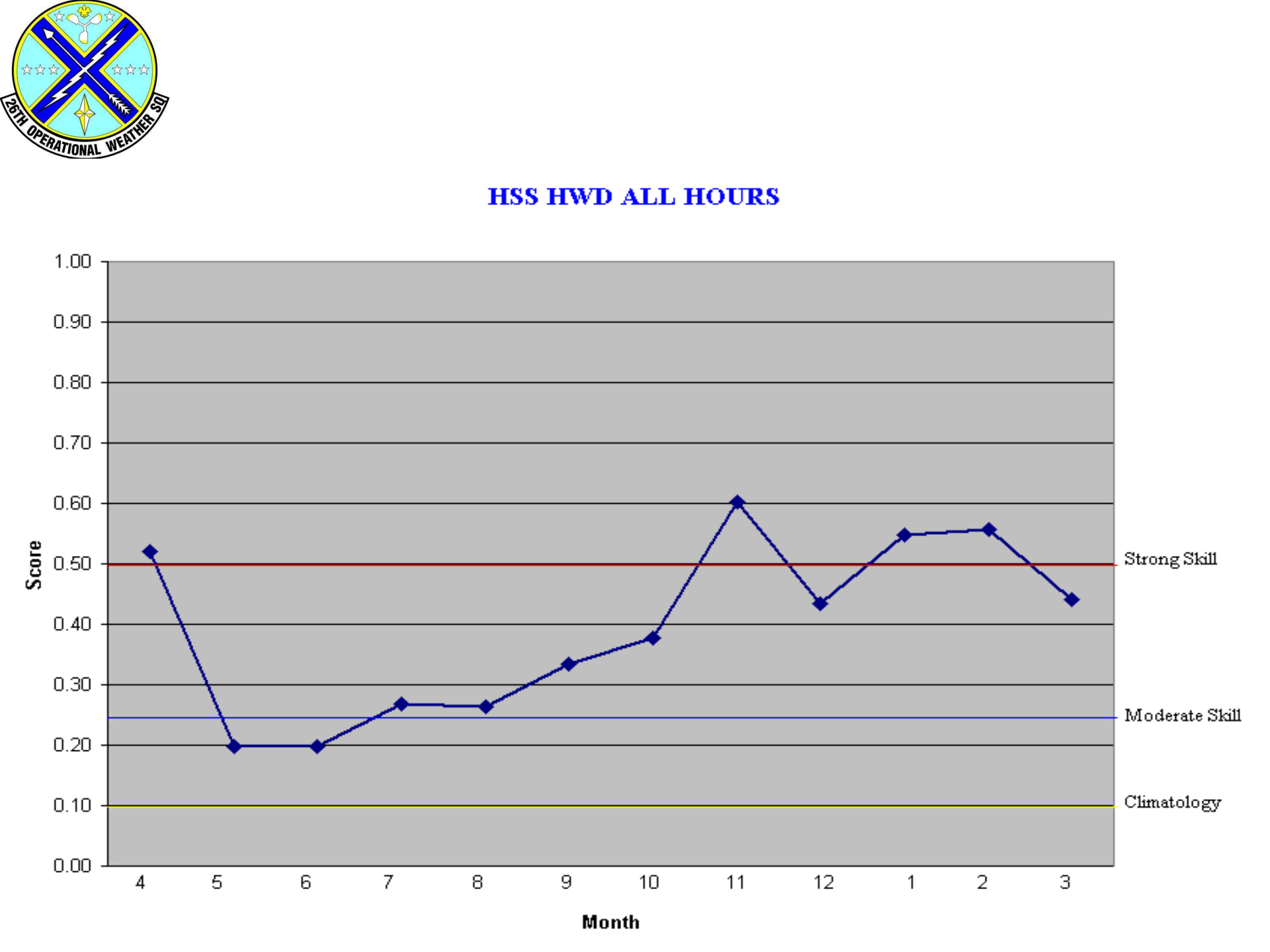
	HWD		TSTMS
12 HR	0.50		0.47
24 HR	0.42	0	0.39
48 HR	0.40		0.20
AVG	0.44		0.35

Mar 04 BIAS

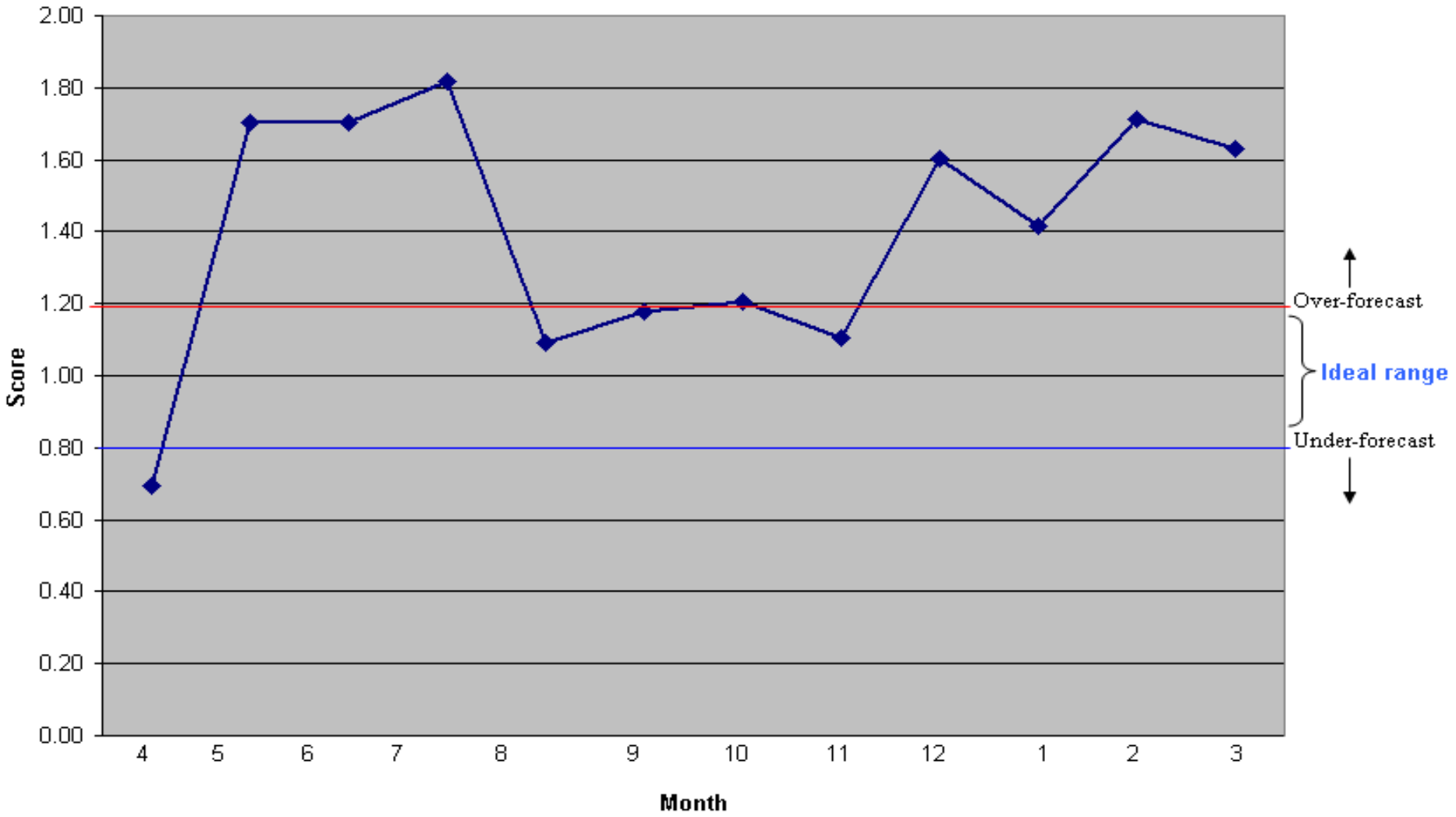


	HWD		TSTMS
12 HR	1.67		1.42
24 HR	1.66		2.41
48 HR	1.56		1.45
AVG	1.63		1.76

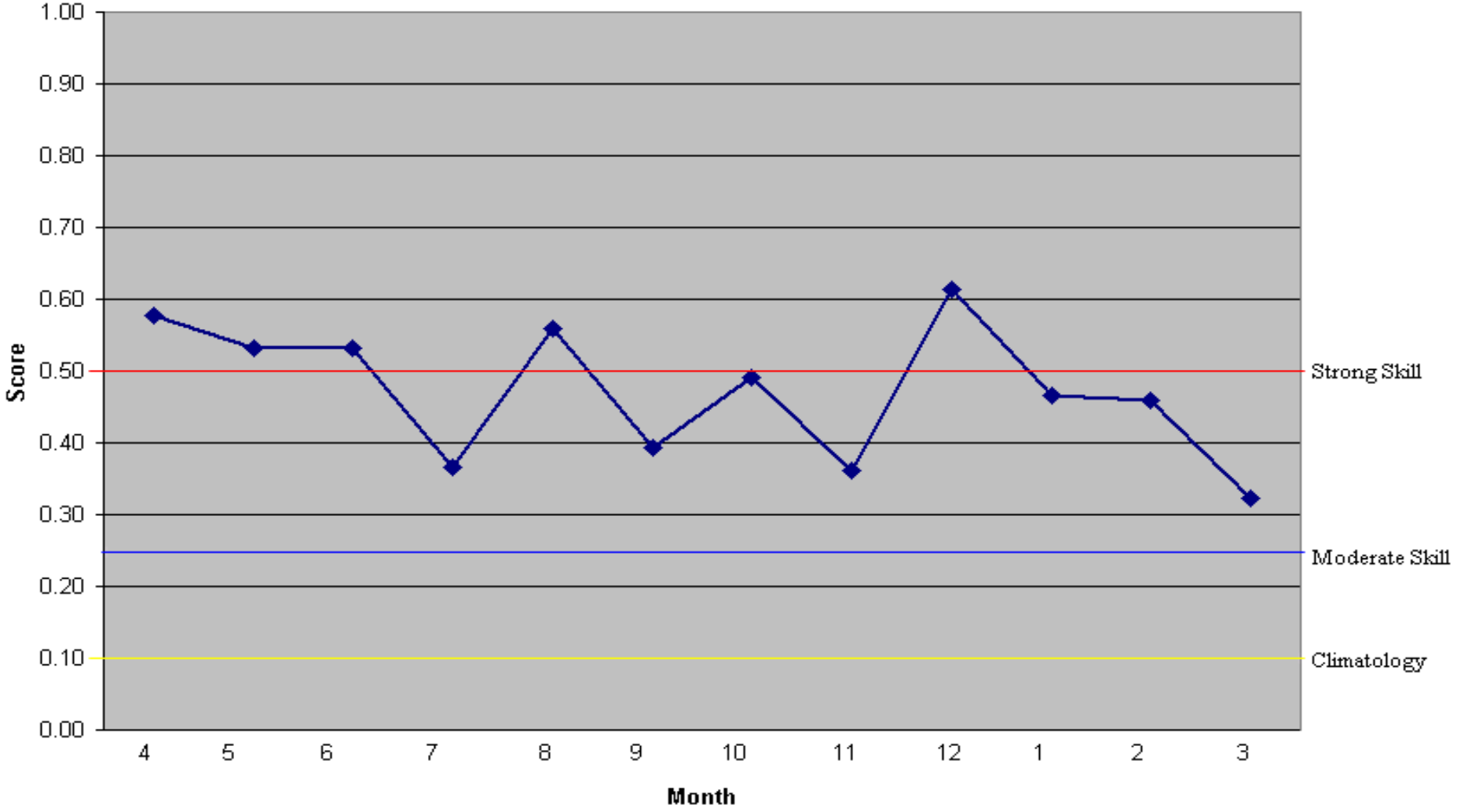
Graphics Trends


HSS HWD ALL HOURS
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
Score
4
5
6
7
8
9
10
11
12
1
2
3
Month
Strong Skill
Moderate Skill
Climatology

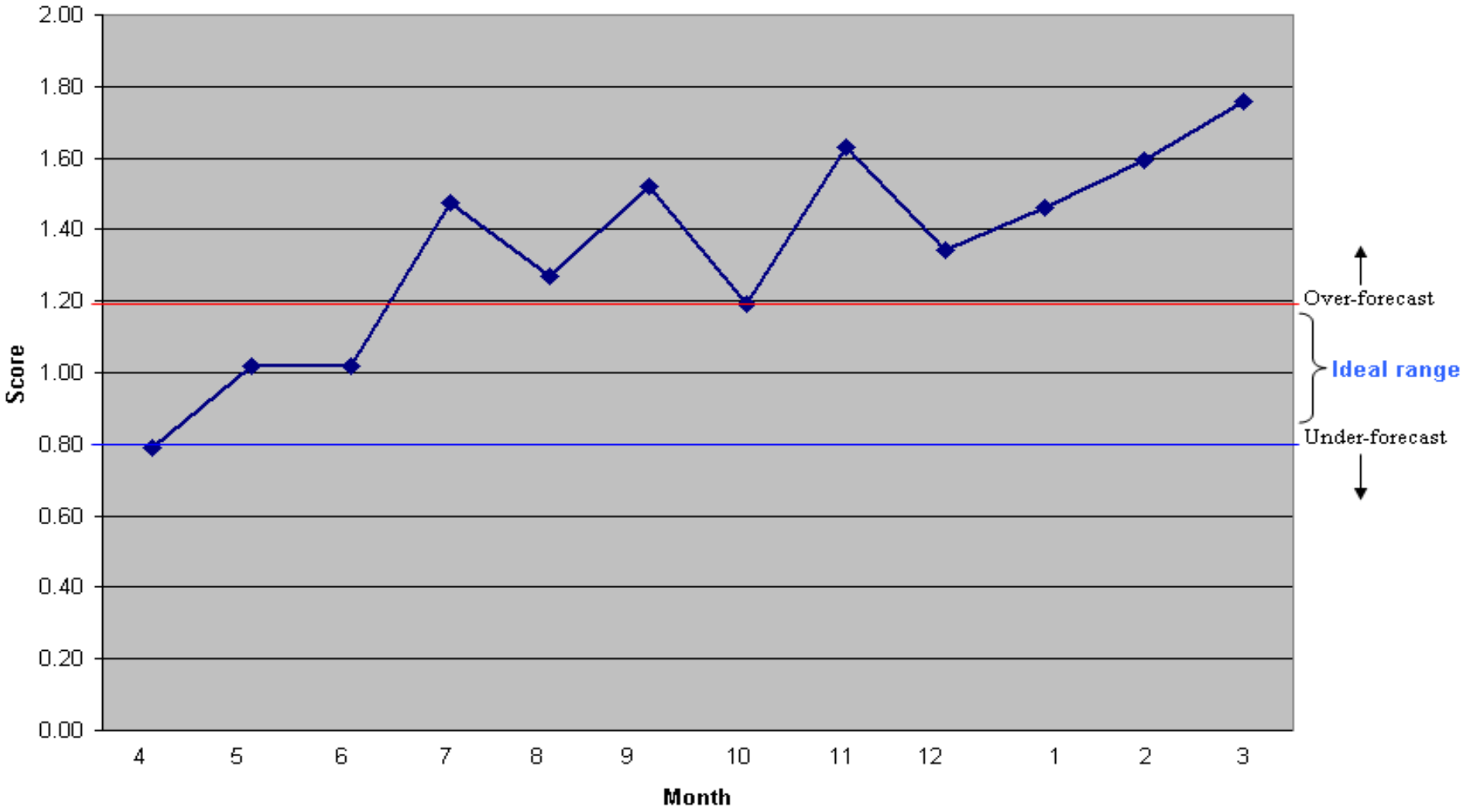
BIAS HWD ALL HOURS



HSS TSTM ALL HOURS



BIAS TSTM ALL HOURS



Review

- HWD – Overall moderate to strong skill with a continued over-forecasting bias. Need to evaluate the model data better and draw for classic patterns.

- TSTMS – Not one of our better months, overall moderate skill. Although numbers indicate over-forecasting bias, this is skewed by the size of our forecast areas (too big) because we actually missed a few events. Again the models are doing better than we are.